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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,729	11/09/2001	Wen-Shi Huang	0941-0361P-SP	6009
2292	7590	10/09/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			MULLINS, BURTON S	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/986,729

Applicant(s)

HUANG ET AL.

Examiner

Burton S. Mullins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-23 is/are allowed.
- 6) ☒ Claim(s) 1-20 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 710 (Fig.3).
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: “arc” 174 (p.8). It is also noted that in Fig.5b, the “gap” 176 does not appear on the outer pole tooth. Is this the “arc”?
3. Applicant is requested to carefully review the drawings and specification for any other deficiencies. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

4. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Recitation “arranged to partly trail behind/exceed” (lines 5&10-11) is vague, indefinite language. The examiner suggests language similar to that found in claim 21 to describe the alternate arrangement of inner teeth with respect to outer teeth.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 6-8, 10 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ida (JP 11-275847). Ida teaches a miniature motor structure, comprising a stator (Figs.1-5), further comprising: a first coil seat 1, including a first bottom plate (not numbered, Fig.1), a plurality of first outer teeth (not numbered, Fig.1), a plurality of first inner teeth (not numbered, Fig.1); a coil 3, formed in the first coil seat; a second coil seat 2, including a second bottom plate (not numbered, Fig.1), a plurality of second outer teeth (not numbered, Fig.1), a plurality of second inner teeth (not numbered, Fig.1), said second coil seat 2 formed on the first coil seat 1, each of said second outer teeth interposed between said adjacent first outer teeth (Figs.1&7), each of said second inner teeth interposed between said adjacent first inner teeth with the tops of the second inner teeth extending to the same plane of the first bottom plate and the tops of the first inner teeth extending to the same plane of the second bottom plate (Figs.1&7); an outer rotor 14 including a circular magnet 11 surrounding said stator; and a shaft 7/12 passing through the stator (Figs.2&10).

Regarding claims 2-3, Ida's first and second bottom plates each further include respective first and second central openings (not numbered, Fig.1), said first and second outer teeth protruding from said first and second bottom plate and surrounding an outer periphery of said first and second bottom plate (Fig.1), said first and second inner teeth protruding from

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said first and second bottom plate and surrounding said first and second central opening (Fig.1).

Regarding claim 6, the coil 3 is positioned in a space defined by the first and second coil seats 1 and 2 (Fig.1).

Regarding claim 7, “preforming” of the coil is inherent in Ida since it must first be formed before placement between the coil seats 1 and 2.

Regarding claim 8, the first and second coil seats 1 and 2 form a “post” around which the coil is wound (Fig.1).

Regarding claims 10 and 19, the inner and outer teeth each comprise an arc shape (Figs.7-8).

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 4 and 12-13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ida. Ida does not explicitly disclose (in the abstract) that his rotor comprises a metal housing, per se. However, this would have been obvious to one having ordinary skill in the art because metal is a well known material used in permanent-magnet rotor hubs. Selection of a known material such as metal on the basis of suitability for the intended use, e.g. for a rotor hub, has been held to involve ordinary skill. In re Leshin, 125 USPQ 416 (CCPA 1960). Further regarding claim 12, note the first and second sets of coil seats, bottom plates, coils, etc. in Ida (Fig.1).

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Regarding claim 13, the first and second coil seats in Ida are identical.

Regarding claim 15, the coil 3 is positioned in a space defined by the first and second coil seats 1 and 2 (Fig.1).

Regarding claim 16, “preforming” of the coil is inherent in Ida since it must first be formed before placement between the coil seats 1 and 2.

Regarding claim 17, the first and second coil seats 1 and 2 form a “post” around which the coil is wound (Fig.1).

9. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ida as applied to respective claims 1 and 12 above, further in view of Chen. Ida does not explicitly disclose (in the abstract) that his coil seats 1 and 2 comprise silicon steel, though the seats must comprise magnetic material capable of passing flux in order for the machine to operate.

Chen teaches first and second coil seats made of silicon steel (c.2, line 12).

It would have been obvious to provide silicon steel seats per Chen on Ida since silicon steel would have been a desirable material to form pole seats and teeth from, so that flux may pass therethrough.

10. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ida in view of Hasebe (US 4,899,075). As best understood, Ida does not disclose a “cut corner” on the first and second inner teeth.

Hasebe teaches a DC brushless motor with a permanent magnet and stator poles having a “cut corner”. Each salient pole has a notched portion in one corner (Fig.3). This prevents the phase angle position of the zero torque level with respect to the fundamental wave torque

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from coinciding with the zero torque level of the second higher harmonic, and thus starting of the motor becomes easy (c.4, lines 30-40).

It would have been obvious to one having ordinary skill at the time of the invention to modify Ida and provide notched poles with “cut corners” per Hasebe since this would improve starting of the motor.

11. Claims 11 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Ida in view of Ebbs (US 3,383,534). Ida does not teach a “gap” in the pole teeth.

Ebbs teaches a stator comprising members 31 and 35 each including pole teeth 41 having a “gap” or axially extending slot 46 (Fig.3) to divide each pole tooth and provide starting torque (c.2, lines 39-51).

It would have been obvious to one of ordinary skill to modify Ida and provide a gap per Ebbs since this would have been desirable to provide starting torque.

### ***Response to Arguments***

12. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Allowable Subject Matter***

13. Claims 21-23 are allowed. The prior art, in particular Ida, Chen and Miyazawa, do not alone or in combination teach that the plurality of first and second inner teeth are alternatively arranged relative to the plurality of first and second outer teeth, as shown in Fig.2(a) of applicant's specification. In Ida, the inner and outer teeth are adjacent to one another in the

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radial direction (e.g., Figs.1&7-8) or, in an alternative embodiment (Fig.3), an outer tooth is radially adjacent every other inner tooth, with the outer teeth larger in the circumferential direction than the inner teeth.

14. Claim 24 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. As best understood, claim 24 recites subject matter directed to the critical feature, as in allowed claim 21 above, of a plurality of first and second inner teeth alternatively arranged relative to the plurality of first and second outer teeth.

### *Conclusion*

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

  
Burton S. Mullins  
Primary Examiner  
Art Unit 2834

bsm  
September 26, 2003